

### **Amendments to the Claims:**

This listing of claims reflects all claim amendments and replaces all prior versions, and listings, of claims in the application. Material to be inserted is in **bold and underline**, and material to be deleted is in ~~strikeout~~ and/or in ~~[[double brackets]]~~ if the deletion would be difficult to see.

### **LISTING OF CLAIMS:**

1. (Currently amended) A method for controlling an engine having an exhaust with an emission control device capable of storing NOx during lean operating conditions, and converting at least a portion of said NOx during stoichiometric or rich operating conditions, the method comprising:

operating the engine to produce a lean exhaust gas mixture fed to the emission control device;

after said lean operation, operating the engine to produce a rich exhaust gas mixture fed to the emission control device, said rich exhaust gas mixture having a rich air-fuel ratio, wherein the rich air-fuel ratio is selected as a function of at least the oxygen storage capacity of the device and temperature of the device, and where the rich air-fuel ratio decreases with decreasing oxygen storage capacity ~~to a greater extent~~ **at a slope that is steeper** at higher temperatures than lower temperatures.

2. (Previously presented) The method of claim 1 wherein the method further comprises estimating the oxygen storage capacity of the emission control device based on an average of several rich to lean transition times.

3. (Cancelled)

4. (Previously presented) The method of claim 1 wherein the rich air-fuel ratio is selected to provide a select amount of CO and H<sub>2</sub>.

5. (Original) The method of claim 1 wherein the oxygen storage capacity of the device is determined based on device degradation.

6. (Original) The method of claim 5 wherein device degradation is based on at least one of an amount of sulfur contaminating the device and thermal degradation of the device.

7. (Original) The method of claim 1 wherein the oxygen storage capacity of the device is determined from rich to lean transition time.

8-16. (Cancelled)

17. (Currently amended) A method for controlling an engine having an exhaust with an emission control device capable of storing NO<sub>x</sub> during lean operating conditions, and converting at least a portion of said NO<sub>x</sub> during stoichiometric or rich operating conditions, the method comprising:

operating the engine to produce a lean exhaust gas mixture fed to the emission control device;

after said lean operation, operating the engine to produce a rich exhaust gas mixture fed to the emission control device, said rich exhaust gas mixture having a rich air-fuel ratio, wherein the rich air-fuel ratio is selected as a function of at least the oxygen storage capacity of the device and temperature of the device, and where as the oxygen storage capacity decreases the rich air-fuel ratio is selected to be less rich by a ~~greater extent~~steeper slope at higher temperatures of the emission control device than at lower temperatures of the emission control device.

18. (Previously presented) The method of claim 17 wherein the rich air-fuel ratio is selected to provide a select amount of CO and H<sub>2</sub>.

19. (Previously presented) The method of claim 18 wherein the oxygen storage capacity of the device is determined based on device degradation.